VPDES PERMIT PROGRAM FACT SHEET

This document gives the pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a **Minor, Industrial** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of §9 VAC 25-260-00 et seq. The discharge results from the operation of a water treatment plant. This permit action consists of updating boilerplate and adding an acute WET limit and compliance schedule.

1. **Facility Name and Address:** **SIC Code:** 4941

Pulaski Water Treatment Plant
Town of Pulaski
P.O. Box 660
Pulaski, VA 24301 Facility Location: 911 Randolph Ave., Pulaski, VA

2. **Permit No. VA0079863** **Expiration Date:** November 17, 2008

3. **Owner Contact:** Name: William Pedigo
Title: Town Engineer
Telephone No.: (540) 994-8616

4. Application Complete Date: October 9, 2008
Permit Drafted By: Kevin A. Harlow Date: September 29, 2008
DEQ Regional Office: Blue Ridge Regional Office
Reviewed By: Kip Foster Date: 10/9/2008
Public Comment Period: October 13, 2008 to November 13, 2008

5. **Receiving Waters Classification:**
Receiving Stream:UT, Tract Fork Creek
Basin: New River Subbasin: N/A Section: 2 Class: IV Special Standards: v, NEW-5
7-Day, 10-Year Low Flow: 0 MGD 1-Day, 10-Year Low Flow: 0 MGD
30-Day, 5-Year Low Flow: 0 MGD Harmonic Mean Flow: 0 MGD
Tidal: No On 303(d) list?: No
The Flow Frequency Memorandum in **Attachment B** contains documentation regarding the development of the critical flows.

6. **Licensed Operator Requirements:** None

7. **Reliability Class:** N/A

8. **Permit Characterization:**
(X) Private ( ) Federal ( ) State ( ) POTW
( ) Possible Interstate Effect ( ) Interim Limits in Other Document (attach to Fact Sheet)

9. **Treatment Provided:**
See attached site inspection report and flow diagram (**Attachment A**).

Raw water is pumped from Peak Creek to the water treatment plant. The raw water enters the flash mix station where lime and alum are added. Activated carbon is added to the raw water during periods of high turbidity. Polymer is added to the amended water after the flash mix prior to entering the

Revised 2/2003

State "FY2003 Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Pulaski Water Treatment Plant

NPDES Permit Number: VA0079863

Permit Writer Name: Kevin A. Harlow

Date: September 25, 2008

Major [ ] **Minor** [X] **Industrial** [X] **Municipal** [ ]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?		**X**	
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		

I.B. Permit/Facility Characteristics – cont. (FY2003)	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?	X		
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?	X		
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist (FY2003)

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?		X	
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			X
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?	X		
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	X		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	X		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			X
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?		X	
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			X
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	X		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont.	Yes	No	N/A
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?	X		
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		X	

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements (FY2003)	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?		X	
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?			X
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?	X		
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
Duty to mitigate	Monitoring and records	Transfers
Proper O & M	Signatory requirement	Monitoring reports
Permit actions	Bypass	Compliance schedules
	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?	X		

Part III. Signature Page (FY2003)

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Kevin A. Harlow
Title	Environmental Engineer, Sr.
Signature	
Date	9/25/2008

Superpulsator. The Superpulsator is an innovative design by Infilco-Degremont that utilizes up-flow through the sludge blanket to aid in settling, similar to a solids contact clarifier. After the Superpulsator, chlorine is added again, if necessary, and the water flows to the sand filters and then to the clearwell for final chlorination, fluoride addition, and pH adjustment with soda ash. Sodium hexametaphosphate is added as a corrosion inhibitor. The finished water is then distributed to the Town's customers.

Waste is generated from backwash of the sand filters, blowdown from the Superpulsator, from the turbidimeters, and drains from the chemical feed building. The sand filter backwash volume averages 55,000 gallons per day. Each filter has about an 80-100 hour run time. The Superpulsator blowdown generates 50,000 gallons a day of wastewater. Blowdown occurs about 8 times a day. Once a year, the Superpulsator is drained completely and cleaned. The flow through the turbidimeters is minimal at 680 gallons per day.

The wastewater is directed to one, lined settling lagoon. Discharge from the lagoon is controlled with a decant structure. The discharge pipe from the lagoon empties into a gully-type area that leads to a UT of Track Fork Creek.

10. **Sewage Sludge Use or Disposal:** Sand filter backwash and sludge blowdown from the Superpulsator is removed and sent to landfill as daily cover.

11. **Discharge(s) Location Description:**
Name of Topo: Pulaski - VA (See **Attachment A**) Quadrangle Number: 083D
Latitude (Outfall 001): 37° 03' 19" Longitude (Outfall 001): 80° 47' 03"

12. **Material Storage:** Chemicals such as chlorine, flouride, hexametaphosphate, and soda ash are stored indoors.

13. **Ambient Water Quality Information:**
The water body ID for this receiving stream is VAW-N17R. A copy of the flow frequency determination memo for the discharge is included in **Attachment B**. The receiving stream for Outfall 001 is Tract Fork Creek, UT on the USGS Pulaski Quadrangle topographic map. The flow frequencies are 0.0 mgd for the 1Q10, 0.0 mgd for the 7Q10, 0.0 mgd for the 30Q5, 0.02 mgd for the high flow 7Q10, and 0.0 mgd for the harmonic mean. No data has been collected on Tract Fork Creek or the unnamed tributary to which the facility discharges.

The facility discharges into an unnamed tributary to Tract Fork Creek. Tract Fork Creek enters Peak Creek approximately 0.7 miles downstream of the discharge. Peak Creek is included on the 2006 303(d) Impaired Waters Report for bacteria impairment, benthic impairment, copper (as stressor to benthic community), and zinc (as stressor to benthic community), and PCBs. The facility is not assigned a TMDL waste load allocation. The facility does not discharge the TMDL parameters bacteria and PCBs. Copper and zinc were below detection levels in the water quality standards monitoring in the 2003 permit term. Copper and zinc will be monitored again in this permit term.

14. **Antidegradation Review and Comments:**
Tier: 1. X 2 _____ 3

The State Water Control Board's Water Quality Standards (WQS) (9 VAC 25-260-30) provide all state surface waters one of three levels of antidegradation protection. For Tier I, existing uses of the water body and the water quality must be maintained. A Tier II water body has water quality that is better than the narrative and numeric water quality criteria. Significant lowering of the water quality

of a Tier II water is not allowed without an evaluation of the economic and social impacts, as required by Water Quality Standards, 9 VAC 25-260-30. A Tier III water body is an exceptional water body that is designated by regulation. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with the Tier determination. Tract Fork Creek, UT is an intermittent stream and is not listed on Part 1 of the 303(d) list for exceedances of water quality criteria. A 4-year compliance schedule has been developed for the facility to obtain compliance with a new acute whole effluent toxicity limit. Therefore the stream segment will be listed in Part II of the 2010 303(d) list and **the unnamed tributary to Tract Fork Creek is determined to be a Tier I water**. Therefore, existing uses of the water body and the water quality to protect these uses must be maintained. Water quality based permit limits are written to be better than or equal to the water quality standards.

For purposes of aquatic life protection, "significant degradation" means that no more that 25% the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, "significant degradation" means that no more than 10% of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The significant degradation baseline (antidegradation baseline) is calculated for each pollutant as follows:

Antidegradation baseline (aquatic life) = 0.25 (WQS – existing quality) + existing quality

Antidegradation baseline (human health) = 0.10 (WQS – existing quality) + existing quality

Where:
"WQS" = Numeric criterion listed in 9 VAC 25-260-5 et seq. for the parameter analyzed
"Existing quality" = Concentration of the parameter being analyzed in the receiving stream, including the facility's existing discharge.

When applied, the antidegradation baselines become the new water quality criteria to prevent significant degradation of the receiving stream. Effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutant. Prior to expansion the antidegradation baselines will be calculated for this facility as described above, in accordance with Guidance Memorandum (GM) 00-2011). Permit limits are in compliance with antidegradation requirements set forth in the 9 VAC 25-260-30.

15. **Site Inspection:**
Date 10/9/2008 Performed By Kevin A. Harlow
See **Attachment A** for a copy of the site inspection.

16. **Effluent Screening and Limitation Development:**
DEQ Guidance Memorandum 00-2011 was used in developing all water quality based limits pursuant to water quality standards (9 VAC 25-260-5 et seq). Refer to **Attachment C** for the facility discharge information, wasteload allocation spreadsheet, and effluent limit calculations. See Table 1 for a summary of the effluent limitations and monitoring requirements associated with the permit parameters.

Reduced Monitoring: All permit applications received after May 4, 1998, are to be considered for reduction in effluent monitoring frequency. GM 98-2005 states that "only facilities having

exemplary operations that consistently meet permit requirements should be considered for reduced monitoring." This facility was issued Notice of Violation #W2004-07-W-0007 on July 9, 2004, as well as Warning Letters #2004-03-W-1014, W2004-05-W-1009, and W2007-11-W-1008 and is therefore ineligible for reduced monitoring.

OUTFALL 001

Flow: Flow is to be estimated once per discharge month. This sample type is in accordance the VPDES Permit Manual. The sample type and frequency are unchanged from the previous permit.

pH: pH limits of 6.0 S.U. minimum and 9.0 S.U. maximum are based on water quality standards (9 VAC 25-260-5 et seq.) for the receiving stream. Monitoring using grab samples is consistent with the current permit and in accordance with the sampling guidelines in the Permit Manual. The limit, sample type, and monitoring frequency are unchanged from the previous permit.

Total Suspended Solids: A BPJ limit of 30 mg/l monthly average and 60 mg/l daily maximum is consistent with the VPDES Permit Manual. The sample type is an 8-hour composite using hourly grab samples until the discharge ceases or until a minimum of 5 grab samples are collected (5G/8HC). The limit, sample type, and monitoring frequency are unchanged from the previous permit.

Total Residual Chlorine: Chlorine is used in the treatment process for disinfection purposes. The agency's WLA and STATS software indicates that a maximum daily and monthly average limit of 11 µg/l is necessary to protect water quality. The WLA andSTATS printouts are included in **Attachment C.** The sample type is grab. The sample type, and monitoring frequency are unchanged from the previous permit.

Whole Effluent Toxicity: WET test data from the 2003 permit term was entered into the WETLIM10.XLS spreadsheet and the Stats.exe program. A reasonable potential exists to exceed the acute water quality standards. A new acute whole effluent toxicity limit of 1.0 TUa, monitored annually, is necessary to protect water quality. The sample type is an 8-hour composite using hourly grab samples until the discharge ceases or until a minimum of 5 grab samples are collected (5G/8HC). There is a 4-yr compliance schedule to attain compliance with this final effluent limitation. Until compliance is achieved the facility is to monitor annually the acute whole effluent toxicity. Additional information and data is included in the TMP Justification Memorandum in **Attachment D**.

Other Water Quality Limits: The water quality standards monitoring results are in **Attachment C**. The Waste Load Allocation calculations are in **Attachment C**. There is no reasonable potential to exceed the WLA and no limits are required. Copper and Zinc will continue to be monitored per permit term due to the potential for contamination and the benthic (copper) and benthic (zinc) impairments in Peak Creek. In order to calculate the WLA for metals, hardness will be monitored at the same frequency.

17. **Antibacksliding Statement:**

All limits in this reissuance are at least as stringent as the limits in the previous permit. Therefore, this permit issuance complies with antibacksliding requirements.

18. **Compliance Schedules:**

A 4-year compliance schedule for the attainment of the final acute whole effluent toxicity limit of a maximum of 1.0 TUa is included as Part I.B of the permit. The final acute whole effluent toxicity limit is a new water quality-based limit. Annual whole effluent toxicity monitoring will be performed and annual progress reports will be made during the compliance schedule.

19. **Special Conditions:**

a. **Notification Levels**
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

b. **Materials Handling/Storage**
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

c. **Operations and Maintenance Manual**
Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

d. **Compliance Reporting**
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

e. **Nutrient Enriched Waters Reopener**
Rationale: Policy for Nutrient Enriched Waters, 9 VAC 25-40-10 et seq. allows reopening of permits for discharges into waters designated as nutrient enriched if total phosphorus and total nitrogen in a discharge potentially exceed specified concentrations. The policy also anticipates that future nutrient limits may be needed to control aquatic plants.

f. **Water Quality Criteria Monitoring**
Rationale: State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

g. **Toxic Management Program**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.

h. **Water Quality Criteria Reopener**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.

i. **Part II, Conditions Applicable to All Permits**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. **NPDES Permit Rating Worksheet:** Total Score 70 See **Attachment E.**

21. **Changes to Permit:**

Permit language has been updated to reflect the recommendations of the VPDES Permit Manual.

Revised:

Part I.A: A final limit of 1.0 TUa for acute whole effluent toxicity, monitored annually, is added. A compliance schedule is provided giving the permittee up to four years to attain compliance with the final effluent limitation. During the compliance schedule acute whole effluent toxicity is required to be monitored annually and reported on the DMR (no limit).

Part I.B: The previous Part I.B - Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements duplicates requirements in other special conditions and is therefore removed.

The new Part I.B is a 4-year compliance schedule to provide time for the facility to attain compliance with the final acute whole effluent toxicity limitation of 1.0 TUa.

Part I.C.6 Based upon the previous results and the Peak Creek TMDLs, the list of parameters and monitoring frequencies in the water quality standards monitoring special condition is revised.

Part I.C.7 The Total Maximum Daily Load (TMDL) Reopener special condition is added as recommended by the current VPDES Permit Manual.

Part I.D: The requirement for monitoring chronic toxicity is removed due the receiving stream having a 7Q10 of 0.0 MGD and the facility having an intermittent discharge. Updated the language to reflect the current language recommended in Guidance Memorandum GM00-2012.

22. **Variances/Alternate Limits or Conditions:** N/A

23. **Public Notice Information:**

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Kevin Harlow at:

Virginia DEQ
West Central Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
540-562-6700
kaharlow@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request

a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

24. **Additional Comments:**

A. **Previous Board Action:** None

B. **Staff Comments:** The discharge is not controversial. The discharge is not addressed in any planning document.

C. **Public Comments**:

25. **303(d) Listed Segments (TMDL)**

The facility discharges into an unnamed tributary to Tract Fork Creek. Neither Tract Fork Creek, UT nor Tract Fork Creek are listed in Part 1 of the 303(d) list. However, Tract Fork Creek enters Peak Creek approximately 0.7 miles downstream of the discharge. Peak Creek is included on the 2006 303(d) Impaired Waters Report for bacteria impairment, benthic impairment, copper (as stressor to benthic community), and zinc (as stressor to benthic community), and PCBs. The facility is not assigned a TMDL waste load allocation. The facility does not discharge the TMDL parameters bacteria and PCBs. Copper and zinc were below detection levels in the water quality standards monitoring in the 2003 permit term. Copper and zinc will be monitored again in this permit term.

Table 1. EFFLUENT LIMITATIONS FOR INDUSTRIAL PERMITS

(X) Interim Limitations
( ) Final Limitations

Outfall 001

Effective Dates - From: Effective Date
To: Compliance with Final Effluent Limits

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow, MGD	NA	NL	NA	NA	NL	1/D-M	Est.
pH, standard units	3	NA	NA	6.0 s.u.	9.0 s.u.	1/D-M	Grab
Total Suspended Solids, mg/l	2	30 mg/l NA kg/d	NA	NA	60 mg/l NA kg/d	1/D-M	5G/8HC
Total Residual Chlorine, µg/l	3	11	NA	11	15 mg/l NA kg/d	1/D-M	Grab
Acute Whole Effluent Toxicity (NOAEC)	3	NA	NA	NA	NL	1/Year	5G/8HC

NA = Not Applicable
NL = No Limitations
1/D-M = Once per month in which a discharge occurs
5G/8HC = Eight hour composite- consisting of grab samples collected at hourly intervals until the discharge ceases or until a minimum of 5 grab samples have been collected.

The basis for the limitations codes are:

1. Federal Effluent Guidelines
2. Best Professional Judgement
3. Water Quality Standards
4. Other

Table 1. EFFLUENT LIMITATIONS FOR INDUSTRIAL PERMITS

( ) Interim Limitations
(X) Final Limitations

Outfall 001

Effective Dates - From: Compliance with Final Effluent Limits
To: Expiration Date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow, MGD	NA	NL	NA	NA	NL	1/D-M	Est.
pH, standard units	3	NA	NA	6.0 s.u.	9.0 s.u.	1/D-M	Grab
Total Suspended Solids, mg/l	2	30 mg/l NA kg/d	NA	NA	60 mg/l NA kg/d	1/D-M	5G/8HC
Total Residual Chlorine, µg/l	3	11	NA	11	15 mg/l NA kg/d	1/D-M	Grab
Acute Whole Effluent Toxicity (NOAEC)	3	NA	NA	NA	1.0 TUa	1/Year	5G/8HC

NA = Not Applicable
NL = No Limitations
1/D-M = Once per month in which a discharge occurs
5G/8HC = Eight hour composite- consisting of grab samples collected at hourly intervals until the discharge ceases or until a minimum of 5 grab samples have been collected.

The basis for the limitations codes are:

1. Federal Effluent Guidelines
2. Best Professional Judgement
3. Water Quality Standards
4. Other

Attachments

A. Facility Information
   - Site Visit Report
   - Wastewater Treatment Diagrams
   - USGS Topographic Map

B. Ambient Water Data
   - Flow Frequency Memorandum
   - 2006 303d Impaired Waters Report (Excerpt)

C. Wasteload and Limit Calculations
   - Effluent Data
   - Wasteload Allocation Spreadsheet
   - WETLIM10 Spreadsheet
   - STATS Program Results

D. TMP Justification Memorandum

E. EPA Permit Rating Worksheet

Attachment A
Facility Information

- **Site Visit Report**
- **Wastewater Treatment Diagrams**
- **USGS Topographic Map**

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: Site Visit of Town of Pulaski, WTP
VA0079863

TO: Permit Fact Sheet

FROM: Kevin A. Harlow, Environmental Engineer Senior

DATE: October 9, 2008

COPIES: Permit File

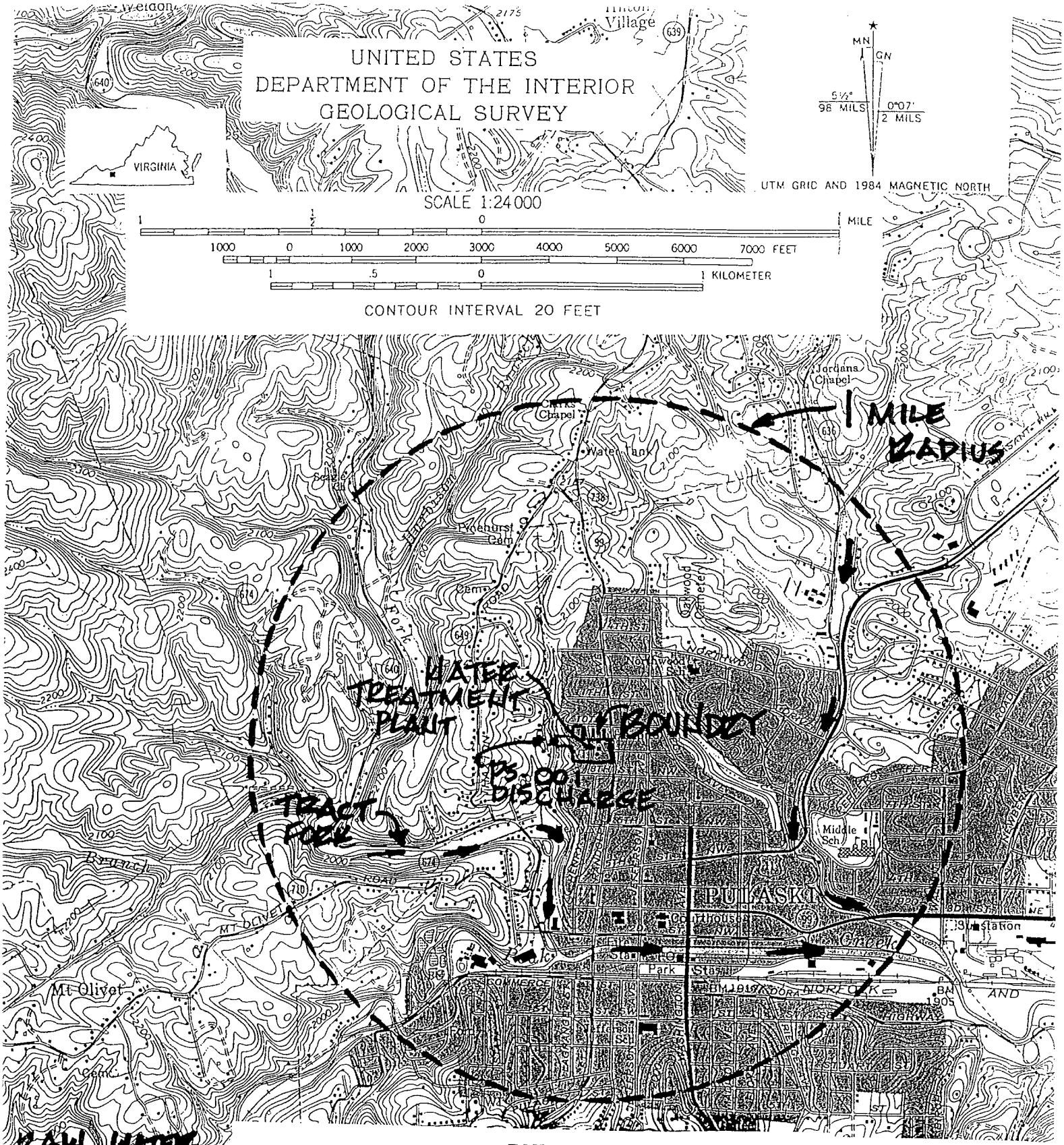
The site inspection was conducted on October 9, 2008 for the permit reissuance. Present during the inspection was John Goad, the chief operator.

Raw water is pumped from Peak Creek to the water treatment plant. The water treatment plant is rated at 4.0 MGD and currently produces about 2.8 MGD of finished water. The raw water enters the flash mix station where lime and alum are added. Activated carbon is added to the raw water during periods of high turbidity. Polymer is added to the amended water after the flash mix prior to entering the Superpulsator. The Superpulsator is an innovative design by Infilco-Degremont that utilizes up-flow through the sludge blanket to aid in settling, similar to a solids contact clarifier. The Superpulsator replaces traditional sedimentation basins and is more efficient. After the Superpulsator, chlorine and fluoride is added and the water flows to the sand filters and then to the clearwell for final chlorination and pH adjustment with soda ash. Sodium hexametaphosphate is added as a corrosion inhibitor. The finished water is then distributed to the Town's customers.

Waste is generated from backwash of the sand filters, blowdown from the Superpulsator, from the turbidimeters, and drains from the chemical feed building. The sand filter backwash volume averages approximately 50,000 to 55,000 gallons per day. Each filter has about an 80-100 hour run time. The Superpulsator blowdown generates on average approximately 35,000 gallons a day of wastewater. Blowdown occurs about 8 times a day. Once a year, the Superpulsator is drained completely and cleaned. The overflow from the turbidimeters is estimated at 680 gallons per day.

This wastewater is directed to one, lined settling lagoon. Discharge from the lagoon is controlled with a three-level decant structure. The valves to the discharge structure are kept closed and are manually opened by the operator. While the lagoon is decanting, no filters are backwashed.

The discharge pipe from the lagoon empties into a gully-type area that leads to the UT of Track Fork Creek. The gully area is owned by the Town.



PULASKI QUADRANGLE
VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

NOTES:

1) No wells or springs are known to exist within ¼ mile.

2) Water treatment Plant
Latitude 37 03' 19"
Longitude 80 47' 03"

Attachment B
Ambient Water Data

- **Flow Frequency Memorandum**
- **2006 303d Impaired Waters Report (Excerpt)**

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Rd. Roanoke, VA 24019

SUBJECT: Flow Frequency Determination
Town of Pulaski WTP - #VA0079863

TO: Permit File

FROM: Kevin Harlow

DATE: September 23, 2008

COPIES: Kevin Harlow

This memo supercedes the September 23, 2003 flow frequency memorandum concerning the subject VPDES permit.

The Town of Pulaski WTP discharges to an unnamed tributary of the Tract Fork in Pulaski, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Pulaski Quadrangle topographical map which shows the receiving stream as intermittent at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean.

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

Cause Group ID: **N17R-01-BAC** **Peak Creek and Claytor Lake (Peak Creek Arm upper portion)**

2006 TMDL Group Codes: 00021 50295 50296

Location: The bacteria impairment extends upstream to approximately 0.2 miles downstream of the Washington Avenue Bridge in Pulaski. The impairment ends in the upper portion of Claytor Lake (Peak Creek Arm) at the beginning of the WQS PWS designation (Dublin Quad).

City / County: Pulaski Co

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli / 4A Escherichia coli / 5A Fecal Coliform / 4A

The Peak Creek Bacteria TMDL Study and allocations is complete with US EPA approval on 8/30/2004 [Fed. ID 7824] and SWCB approval on 12/02/2004. The waters are initially 303(d) Listed with the 2002 Assessment for fecal coliform bacteria and extended 0.39 miles with the 2006 IR. The TMDL Study can be viewed at http://www.deq.virginia.gov. The Bacteria TMDL Study did not specifically address that portion of Peak Creek within Claytor Lake (77.74 acres). Future Assessments and 303(d) Listings will replace fecal coliform bacteria with Escherichia coli (E.coli) bacteria as the indicator with sufficient E.coli data as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

9-PKC011.11 (Commerce St. Bridge) Two FC observations exceed the WQS 400 cfu/100 ml instantaneous criterion at 900 and 1700 from 15 samples. FC remains as 12 or more E.coli collections have not been made. E.coli results find two of seven samples in excess of the 235 cfu/100 ml criterion. Both exceedences are 500 and 640 cfu/100 ml.

9-PKC009.29 (Near Radio Tower) E.coli exceeds the instantaneous criterion in 11 of 18 samples. Exceeding values range from 240 cfu/100 ml. to 10,000.

9-PKC004.65 (Route 100 Bridge) Two of nine E.coli bacteria counts exceed the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 250 and 300 cfu/100 ml.

Assessment Unit / Water Name / Description	Cause Category / Name		Cycle First Listed	TMDL Schedule	Size
VAW-N17R_PKC01A00 / Peak Creek Lower / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake.	4A	Escherichia coli	2002	2004	2.84
VAW-N17R_PKC02A00 / Peak Creek Middle 1 / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek.	4A	Escherichia coli	2006	2004	1.62
VAW-N17R_PKC03A00 / Peak Creek Middle 2 / This portion of Peak Creek extends from the mouth of Tract Fork to downstream of the Washington Ave. Bridge (~0.20 miles).	4A	Escherichia coli	2006	2004	0.49
VAW-N17R_PKC03A06 / Peak Creek Middle 3 / This portion of Peak Creek extends from the Magnox, Inc. outfall on downstream to the mouth of Tract Fork.	4A	Escherichia coli	2006	2004	0.39
VAW-N17R_PKC04A00 / Peak Creek Upper / The segment extends from the mouth of Hogan Creek downstream to just above the Magnox. Inc. outfall on Peak Creek.	4A	Escherichia coli	2006	2004	2.10

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

Assessment Unit / Water Name / Description	Cause Category / Name		Cycle First Listed	TMDL Schedule	Size
Peak Creek and Claytor Lake (Peak Creek Arm upper portion)			Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Escherichia coli - Total Impaired Size by Water Type:				7.44
VAW-N17R_PKC03A06 / Peak Creek Middle 3 / This portion of Peak Creek extends from the Magnox, Inc. outfall on downstream to the mouth of Tract Fork.	4A	Fecal Coliform	2006	2004	0.39
VAW-N17R_PKC04A00 / Peak Creek Upper / The segment extends from the mouth of Hogan Creek downstream to just above the Magnox. Inc. outfall on Peak Creek.	4A	Fecal Coliform	2006	2004	2.10
Peak Creek and Claytor Lake (Peak Creek Arm upper portion)			Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
	Fecal Coliform - Total Impaired Size by Water Type:				2.49

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)	Sanitary Sewer Overflows (Collection System Failures)
Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl	

*The narrative above describes the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

Cause Group ID: **N17R-01-BEN** **Peak Creek**

2006 TMDL Group Codes: 00154

Location: Benthic impaired waters begin downstream of the Washington Ave. Bridge (~0.20 miles) on downstream to the inundation of Peak Creek in Claytor Lake.

City / County: Pulaski Co

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic-Macroinvertebrate Bioassessments (Streams) / 4A

The Peak Creek General Standard - Benthic (Metals) TMDL Study and allocations are complete with US EPA approval on 8/30/2004 [Fed. ID 7823/7822] and SWCB approval on 12/02/2004. The TMDL Study finds cooper (Cu) and zinc (Zn) stressors to benthic community.

9-PKC009.29 (Near Radio Tower) Bio 'MI'; remains moderately impaired; Four RBP II surveys scoring; 2000 spring- 60.87; 2002- spring 47.28, fall- 36.36 & 2003- spring 100) . BPJ used during many assessments due to the use of metrics not in the RBP II suite such as %Ephemeroptera (mayflies), % EPT (-Hydropsychidae), and %Chironomidae. The use of additional metrics aided in identifying declines in sensitive taxa relative to the reference station and the upper Peak Creek station (9-PKC011.11).

9-PKC007.80 (Rt. 99 Bridge) Bio 'MI'; moderate impairment; Four RBP II surveys scoring; 2000 spring- 17.39; 2002 spring- 56.52 fall- 50.0 and 2003 spring- 76.19.

Assessment Unit / Water Name / Description	Cause Category	Name	Cycle First Listed	TMDL Schedule	Size
VAW-N17R_PKC01A00 / Peak Creek Lower / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake.	4A	Benthic-Macroinvertebrate Bioassessments (Streams)	1996	2004	2.84
VAW-N17R_PKC02A00 / Peak Creek Middle 1 / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek.	4A	Benthic-Macroinvertebrate Bioassessments (Streams)	1996	2004	1.62

Peak Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic-Macroinvertebrate Bioassessments (Streams) - Total Impaired Size by Water Type:			4.46

Sources:

Contaminated Sediments	Industrial/Commercial Site Stormwater Discharge (Permittted)	Sediment Resuspension (Contaminated Sediment)

*The narrative above describes the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

Cause Group ID: **N17R-01-CU** **Peak Creek**

2006 TMDL Group Codes: 40020

Location: Impairment begins downstream of the Washington Ave. Bridge (~0.20 miles) on downstream to the inundation of Peak Creek in Claytor Lake.

City / County: Pulaski Co

Use(s): Aquatic Life

Cause(s) / VA Category: Copper / 4A

The Peak Creek General Standard - Benthic (Metals) TMDL Study and allocations are complete with US EPA approval on 8/30/2004 [Fed. ID 7823/7822] and SWCB approval on 12/02/2004.

The TMDL Study finds cooper (Cu) and zinc (Zn) stressors to benthic community. The likelihood of dissolved metals reaching acute levels of toxicity in the water column during low-flow and storm events was assessed. The impact of point source discharges of Cu and Zn during low flow was analyzed and it was determined that the concentrations of Cu and Zn would not likely approach the acute criteria for aquatic life (i.e., 13 µg/l and 120 µg/l for Cu and Zn, respectively). It was anticipated that acidic runoff from historic industrial sites may leach significant levels of dissolved Cu and Zn to the stream during storm events. The weight of evidence at this time, including site observations and collected data, points to soils at or from the Allied Signal site as the main source of contamination.

Assessment Unit / Water Name / Description	Cause Category / Name	Cycle First Listed	TMDL Schedule	Size
VAW-N17R_PKC01A00 / Peak Creek Lower / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake.	4A Copper	2006	2004	2.84
VAW-N17R_PKC02A00 / Peak Creek Middle 1 / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek.	4A Copper	2006	2004	1.62

Peak Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Copper - Total Impaired Size by Water Type:			4.46

Sources:

Contaminated Sediments	Industrial/Commercial Site Stormwater Discharge (Permittted)	Sediment Resuspension (Contaminated Sediment)

*The narrative above describes the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

Cause Group ID: **N17R-01-ZN** **Peak Creek**

2006 TMDL Group Codes: 50049

Location: Impairment begins downstream of the Washington Ave. Bridge (~0.20 miles) on downstream to the inundation of Peak Creek in Claytor Lake.

City / County: Pulaski Co

Use(s): Aquatic Life

Cause(s) / VA Category: Zinc / 4A

The Peak Creek General Standard - Benthic (Metals) TMDL Study and allocations are complete with US EPA approval on 8/30/2004 [Fed. ID 7823/7822] and SWCB approval on 12/02/2004.

The TMDL Study finds cooper (Cu) and zinc (Zn) stressors to benthic community. The likelihood of dissolved metals reaching acute levels of toxicity in the water column during low-flow and storm events was assessed. The impact of point source discharges of Cu and Zn during low flow was analyzed and it was determined that the concentrations of Cu and Zn would not likely approach the acute criteria for aquatic life (i.e., 13 µg/l and 120 µg/l for Cu and Zn, respectively). It was anticipated that acidic runoff from historic industrial sites may leach significant levels of dissolved Cu and Zn to the stream during storm events. The weight of evidence at this time, including site observations and collected data, points to soils at or from the Allied Signal site as the main source of contamination.

Assessment Unit / Water Name / Description	Cause Category / Name	Cycle First Listed	TMDL Schedule	Size
VAW-N17R_PKC01A00 / Peak Creek Lower / This portion of Peak Creek begins just downstream of the Rt. 99/Norfolk Southern crossing extending downstream to the inundation of Peak Creek in Claytor Lake.	4A Zinc	2006	2004	2.84
VAW-N17R_PKC02A00 / Peak Creek Middle 1 / The segment begins downstream of the Washington Ave. Bridge (~0.20 miles) and extends on downstream to just below the Rt. 99 Bridge/Norfolk Southern Railway crossing of Peak Creek.	4A Zinc	2006	2004	1.62

Peak Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Zinc - Total Impaired Size by Water Type:			4.46

Sources:

Contaminated Sediments	Industrial/Commercial Site Stormwater Discharge (Permittted)	Sediment Resuspension (Contaminated Sediment)

*The narrative above describes the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

2006 Impaired Waters

Categories 4 and 5 by DCR Watershed

New River Basin

Fact Sheet prepared for DCR Watershed: N17R.*

New River, Claytor Lake, Peak Creek and Reed Creek

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:			4.95

Sources:

Source Unknown

*The narrative above describes the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

Attachment C
Wasteload and Limit Calculations

- **Effluent Data**
- **Wasteload Allocation Spreadsheet**
- **WETLIM10 Spreadsheet**
- **STATS Program Results**

Town of Pulaski Water Treatment Plant - VA0079863
Effluent pH Data - Outfall 001

pH Data

Due Date	Min (su)	Max (su)
10-Nov-2003	6.4	6.9
10-Dec-2003	6.7	6.9
10-Jan-2004	6.6	6.9
10-Feb-2004	6.6	7
10-Mar-2004	6.5	7
10-Apr-2004	6.5	7.1
10-May-2004	6.6	6.8
10-Jun-2004	6.5	6.9
10-Jul-2004	6	6.9
10-Aug-2004	6.6	7
10-Sep-2004	6.7	7
10-Oct-2004	6.6	6.9
10-Nov-2004	6.6	6.9
10-Dec-2004	6.5	6.9
10-Jan-2005	6.6	6.9
10-Feb-2005	6.6	7
10-Mar-2005	6.5	6.9
10-Apr-2005	6.7	7
10-May-2005	6.7	6.9
10-Jun-2005	6.7	7
10-Jul-2005	6.7	7.2
10-Aug-2005	6.7	7
10-Sep-2005	6.7	7.1
10-Oct-2005	6.7	7.1
10-Nov-2005	6.7	7.1
10-Dec-2005	6.6	7
10-Jan-2006	6.6	6.9
10-Feb-2006	6.7	7
10-Mar-2006	6.7	6.9
10-Apr-2006	6.8	7
10-May-2006	6.7	6.9
10-Jun-2006	6.7	6.9
10-Jul-2006	6.7	6.9
10-Aug-2006	6.7	7
10-Sep-2006	6.9	7.1
10-Oct-2006	6.9	7.2
10-Nov-2006	6.9	7.1
10-Dec-2006	6.8	7.1
10-Jan-2007	6.8	7
10-Feb-2007	6.8	7
10-Mar-2007	6.8	7.1
10-Apr-2007	6.9	7.2
10-May-2007	6.8	7.1
10-Jun-2007	6.7	7
10-Jul-2007	6.7	7
10-Aug-2007	6.9	7.2
10-Sep-2007	6.9	7.2
10-Oct-2007	6.9	7.1
10-Nov-2007	6.8	7.2
10-Dec-2007	6.6	7.2
10-Jan-2008	6.8	7.1
10-Feb-2008	6.8	7.2
10-Mar-2008	6.8	7.2
10-Apr-2008	6.9	7.3
10-May-2008	6.8	7.2
10-Jun-2008	7	7.3
10-Jul-2008	6.8	7.2
10-Aug-2008	6.8	7.2
10-Sep-2008	6.6	7.4
AVERAGE	6.70	7.05

Hardness Data

Date	Hardness (mg/L CaCo3)
Jan-04	88
Jun-04	88
Nov-05	52
Feb-07	40
Dec-07	32
Average	60

WQS Data

Parameter	Dec-07
Cadmium	<1
Chromium III	<5
Copper	<5
Lead	<5
Selenium	<5
Zinc	<5

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Pulaski WTP Permit No.: VA0079863

Receiving Stream: North Tract Fork, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	100 mg/L
90% Temperature (Annual) =	24 deg C
90% Temperature (Wet season) =	16 deg C
90% Maximum pH =	8 SU
10% Maximum pH =	7 SU
Tier Designation (1 or 2) =	2
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	0 MGD
7Q10 (Annual) =	0 MGD
30Q10 (Annual) =	0 MGD
1Q10 (Wet season) =	0 MGD
30Q10 (Wet season)	0 MGD
30Q5 =	0 MGD
Harmonic Mean =	0 MGD
Annual Average =	0 MGD

Mixing Information

Annual - 1Q10 Mix =	100 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	100 %
- 30Q10 Mix =	100 %

Effluent Information

Mean Hardness (as CaCO3) =	60 mg/L
90% Temp (Annual) =	24 deg C
90% Temp (Wet season) =	16 deg C
90% Maximum pH =	7.05 SU
10% Maximum pH =	6.7 SU
Discharge Flow =	0.26 MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	na	2.7E+02	--	--	na	2.7E+02	--	--	na	2.7E+02
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	na	7.8E+01	--	--	na	7.8E+01	--	--	na	7.8E+01
Acrylonitrile [C]	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	na	6.6E-01	--	--	na	6.6E-01	--	--	na	6.6E-01
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	7.5E-01	--	na	1.4E-04	7.5E-01	--	na	1.4E-04	7.5E-01	--	na	1.4E-04
Ammonia-N (mg/l) (Yearly)	0	3.45E+01	3.14E+00	na	--	3.4E+01	3.1E+00	na	--	8.62E+00	7.86E-01	na	--	8.6E+00	7.9E-01	na	--	8.6E+00	7.9E-01	na	--
Ammonia-N (mg/l) (High Flow)	0	3.45E+01	5.27E+00	na	--	3.4E+01	5.3E+00	na	--	8.62E+00	1.32E+00	na	--	8.6E+00	1.3E+00	na	--	8.6E+00	1.3E+00	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	na	1.1E+04
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	na	4.3E+02	--	--	na	4.3E+02	--	--	na	4.3E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	8.5E+01	3.8E+01	na	--	8.5E+01	3.8E+01	na	--	8.5E+01	3.8E+01	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	na	7.1E+01	--	--	na	7.1E+01	--	--	na	7.1E+01
Benzidine [C]	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	na	5.4E-04	--	--	na	5.4E-04	--	--	na	5.4E-04
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	na	1.4E+00	--	--	na	1.4E+00	--	--	na	1.4E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+04
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	na	3.6E+02	--	--	na	3.6E+02	--	--	na	3.6E+02
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	na	5.2E+02	--	--	na	5.2E+02	--	--	na	5.2E+02
Cadmium	0	2.2E+00	7.6E-01	na	--	2.2E+00	7.6E-01	na	--	5.5E-01	1.9E-01	na	--	5.5E-01	1.9E-01	na	--	5.5E-01	1.9E-01	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	na	4.4E+00	--	--	na	4.4E+00	--	--	na	4.4E+00
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	6.0E-01	1.1E-03	na	2.2E-03	6.0E-01	1.1E-03	na	2.2E-03	6.0E-01	1.1E-03	na	2.2E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	2.2E+05	5.8E+04	na	--	2.2E+05	5.8E+04	na	--	2.2E+05	5.8E+04	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	4.8E+00	2.8E+00	na	--	4.8E+00	2.8E+00	na	--	4.8E+00	2.8E+00	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	na	2.1E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[E]	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	na	3.4E+01
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	na	2.9E+03	--	--	na	2.9E+03	--	--	na	2.9E+03
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	na	4.3E+02	--	--	na	4.3E+02	--	--	na	4.3E+02
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	na	4.0E+01
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	2.1E-02	1.0E-02	na	--	2.1E-02	1.0E-02	na	--	2.1E-02	1.0E-02	na	--
Chromium III	0	3.7E+02	4.9E+01	na	--	3.7E+02	4.9E+01	na	--	9.4E+01	1.2E+01	na	--	9.4E+01	1.2E+01	na	--	9.4E+01	1.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	4.0E+00	2.8E+00	na	--	4.0E+00	2.8E+00	na	--	4.0E+00	2.8E+00	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Copper	0	8.3E+00	5.8E+00	na	--	8.3E+00	5.8E+00	na	--	2.1E+00	1.4E+00	na	--	2.1E+00	1.4E+00	na	--	2.1E+00	1.4E+00	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	5.5E+00	1.3E+00	na	2.2E+04	5.5E+00	1.3E+00	na	2.2E+04	5.5E+00	1.3E+00	na	2.2E+04
DDD [C]	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	na	8.4E-04	--	--	na	8.4E-04	--	--	na	8.4E-04
DDE [C]	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	na	5.9E-04	--	--	na	5.9E-04	--	--	na	5.9E-04
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	2.8E-01	2.5E-04	na	5.9E-04	2.8E-01	2.5E-04	na	5.9E-04	2.8E-01	2.5E-04	na	5.9E-04
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	1.2E+03	--	--	na	1.2E+03	--	--	na	1.2E+03
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	na	1.6E+03
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+03
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+02	--	--	na	2.6E+02	--	--	na	2.6E+02
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+02	--	--	na	2.6E+02	--	--	na	2.6E+02
3,3-Dichlorobenzidine[E]	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	na	7.7E-02	--	--	na	7.7E-02	--	--	na	7.7E-02
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	na	4.6E+01	--	--	na	4.6E+01	--	--	na	4.6E+01
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	na	9.9E+01	--	--	na	9.9E+01	--	--	na	9.9E+01
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+03
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	1.4E+04
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	na	7.9E+01	--	--	na	7.9E+01	--	--	na	7.9E+01
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane[E]	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	na	3.9E+01	--	--	na	3.9E+01	--	--	na	3.9E+01
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	na	1.7E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	6.0E-02	1.4E-02	na	1.4E-04	6.0E-02	1.4E-02	na	1.4E-04	6.0E-02	1.4E-02	na	1.4E-04
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	1.2E+04
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	na	5.9E+00	--	--	na	5.9E+00	--	--	na	5.9E+00
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	na	2.3E+02	--	--	na	2.3E+02	--	--	na	2.3E+02
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	na	2.9E+05	--	--	na	2.9E+05	--	--	na	2.9E+05
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	1.2E+03	--	--	na	1.2E+03	--	--	na	1.2E+03
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	na	1.4E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	na	7.7E+01	--	--	na	7.7E+01	--	--	na	7.7E+01
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	na	9.1E+00	--	--	na	9.1E+00	--	--	na	9.1E+00
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	na	1.2E-07	--	--	na	1.2E-07	--	--	na	na
1,2-Diphenylhydrazine[E]	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	na	5.4E-01	--	--	na	5.4E-01	--	--	na	5.4E-01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	na	2.4E+01
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	2.2E-02	9.0E-03	na	8.1E-02	2.2E-02	9.0E-03	na	8.1E-02	2.2E-02	9.0E-03	na	8.1E-02
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	na	8.1E-02	--	--	na	8.1E-02	--	--	na	8.1E-02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	na	2.9E+03	--	--	na	2.9E+03	--	--	na	2.9E+03
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	na	3.7E+01	--	--	na	3.7E+01	--	--	na	3.7E+01
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	na	1.4E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	2.5E-03	na	--	--	2.5E-03	na	--	--	2.5E-03	na	--
Heptachlor [c]	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	1.3E-01	9.5E-04	na	2.1E-04	1.3E-01	9.5E-04	na	2.1E-04	1.3E-01	9.5E-04	na	2.1E-04
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	1.3E-01	9.5E-04	na	1.1E-04	1.3E-01	9.5E-04	na	1.1E-04	1.3E-01	9.5E-04	na	1.1E-04
Hexachlorobenzene[c]	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	na	7.7E-04	--	--	na	7.7E-04	--	--	na	7.7E-04
Hexachlorobutadiene[c]	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	na	5.0E+01	--	--	na	5.0E+01	--	--	na	5.0E+01
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	na	1.3E-02	--	--	na	1.3E-02	--	--	na	1.3E-02
Hexachlorocyclohexane Beta-BHC[c]	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	na	4.6E-02	--	--	na	4.6E-02	--	--	na	4.6E-02
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	2.4E-01	--	na	6.3E-02	2.4E-01	--	na	6.3E-02	2.4E-01	--	na	6.3E-02
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+03
Hexachloroethane[c]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	na	8.9E+00	--	--	na	8.9E+00	--	--	na	8.9E+00
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone[c]	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	0	6.2E+01	7.1E+00	na	--	6.2E+01	7.1E+00	na	--	1.6E+01	1.8E+00	na	--	1.6E+01	1.8E+00	na	--	1.6E+01	1.8E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	3.5E-01	1.9E-01	na	5.1E-03	3.5E-01	1.9E-01	na	5.1E-03	3.5E-01	1.9E-01	na	5.1E-03
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	na	4.0E+02
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	na	2.1E+03
Nickel	0	1.2E+02	1.3E+01	na	4.6E+03	1.2E+02	1.3E+01	na	4.6E+03	3.0E+01	3.3E+00	na	4.6E+02	3.0E+01	3.3E+00	na	4.6E+02	3.0E+01	3.3E+00	na	4.6E+02
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	na	1.9E+02
N-Nitrosodimethylamine[c]	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	na	8.1E+00	--	--	na	8.1E+00	--	--	na	8.1E+00
N-Nitrosodiphenylamine[c]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	na	1.6E+01
N-Nitrosodi-n-propylamine[c]	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	na	1.4E+00	--	--	na	1.4E+00	--	--	na	1.4E+00
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB Total[c]	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	na	1.7E-04	--	--	na	1.7E-04	--	--	na	1.7E-04

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol [C]	0	6.5E+00	5.0E+00	na	8.2E+01	6.5E+00	5.0E+00	na	8.2E+01	1.6E+00	1.2E+00	na	8.2E+00	1.6E+00	1.2E+00	na	8.2E+00	**1.6E+00**	**1.2E+00**	na	**8.2E+00**
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	na	4.6E+05	--	--	na	4.6E+05	--	--	na	**4.6E+05**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	na	**1.1E+03**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	na	1.5E+00	--	--	na	1.5E+00	--	--	na	**1.5E+00**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	na	4.0E-01	--	--	na	4.0E-01	--	--	na	**4.0E-01**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	na	8.0E-01	--	--	na	8.0E-01	--	--	na	**8.0E-01**
Tritium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	na	2.0E+03	--	--	na	2.0E+03	--	--	na	**2.0E+03**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	5.0E+00	1.3E+00	na	1.1E+03	5.0E+00	1.3E+00	na	1.1E+03	**5.0E+00**	**1.3E+00**	na	**1.1E+03**
Silver	0	1.4E+00	--	na	--	1.4E+00	--	na	--	3.6E-01	--	na	--	3.6E-01	--	na	--	**3.6E-01**	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,1,2,2-Tetrachloroethane [C]	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	na	1.1E+01	--	--	na	1.1E+01	--	--	na	**1.1E+01**
Tetrachloroethylene [C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	na	8.9E+00	--	--	na	8.9E+00	--	--	na	**8.9E+00**
Thallium	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	na	6.3E-01	--	--	na	6.3E-01	--	--	na	**6.3E-01**
Toluene	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	na	**2.0E+04**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	1.8E-01	5.0E-05	na	7.5E-04	1.8E-01	5.0E-05	na	7.5E-04	**1.8E-01**	**5.0E-05**	na	**7.5E-04**
Tributyltin	0	4.6E-01	6.3E-02	na	--	4.6E-01	6.3E-02	na	--	1.2E-01	1.6E-02	na	--	1.2E-01	1.6E-02	na	--	**1.2E-01**	**1.6E-02**	na	--
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	na	9.4E+01	--	--	na	9.4E+01	--	--	na	**9.4E+01**
1,1,2-Trichloroethane [C]	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	na	4.2E+01	--	--	na	4.2E+01	--	--	na	**4.2E+01**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	na	**8.1E+01**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	na	6.5E+00	--	--	na	6.5E+00	--	--	na	**6.5E+00**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Vinyl Chloride [C]	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	na	6.1E+00	--	--	na	6.1E+00	--	--	na	**6.1E+00**
Zinc	0	7.6E+01	7.7E+01	na	6.9E+04	7.6E+01	7.7E+01	na	6.9E+04	1.9E+01	1.9E+01	na	6.9E+03	1.9E+01	1.9E+01	na	6.9E+03	**1.9E+01**	**1.9E+01**	na	**6.9E+03**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+02
Arsenic	2.3E+01
Barium	na
Cadmium	1.1E-01
Chromium III	7.3E+00
Chromium VI	1.6E+00
Copper	8.3E-01
Iron	na
Lead	1.1E+00
Manganese	na
Mercury	5.1E-03
Nickel	2.0E+00
Selenium	7.5E-01
Silver	1.4E-01
Zinc	7.6E+00

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX.EXE required also)

Acute Endpoint/Permit Limit — **Use as LC_{50} in Special Condition, as TUa on DMR**

ACUTE	100% =	NOAEC	LC_{50} =	NA	% Use as	NA	TUa
ACUTE WLAa		0.3	Note: Inform the permittee that if the mean of the data exceeds this TUa:	1.0	a limit may result using WLA.EXE		

Chronic Endpoint/Permit Limit — **Use as NOEC in Special Condition, as TUc on DMR**

CHRONIC	1.462574684	TU_c	NOEC =	69	% Use as	1.44	TU_c
BOTH*	3.000000074	TU_c	NOEC =	34	% Use as	2.94	TU_c
AML	1.462574684	TU_c	NOEC =	69	% Use as	1.44	TU_c

ACUTE WLAa,c	3
CHRONIC WLAc	1

* Both means acute expressed as chronic

Note: Inform the permittee that if the mean of the data exceeds this TUc: 1.0 a limit may result using WLA.EXE

Enter data in the cells with blue type:

Entry Date:	10/03/08	
Facility Name:		
VPDES Number:	VA0079863	
Outfall Number:	001	
Plant Flow:	0.262	MGD
Acute 1Q10:	0	MGD
Chronic 7Q10:	0	MGD

% Flow to be used from MIX.EXE

Acute	100 %
Chronic	100 %

Difuser /modeling study?

Enter Y/N	N
Acute	1 :1
Chronic	1 :1

Are data available to calculate CV? (Y/N) N (Minimum of 10 data points, same species, needed) Go to Page 2
Are data available to calculate ACR? (Y/N) N (NOEC<LC50, do not use greater/less than data) Go to Page 3

NOTE: If the IWCa is >33%, specify the NOAEC = 100% test/endpoint for use

IWC_a	100 %	Plant flow/plant flow + 1Q10
IWC_c	100 %	Plant flow/plant flow + 7Q10
Dilution, acute	1	100/IWCa
Dilution, chronic	1	100/IWCc
WLA_a	0.3	Instream criterion (0.3 TUa) X's Dilution, acute
WLA_c	1	Instream criterion (1.0 TUc) X's Dilution, chronic
$WLA_{a,c}$	3	ACR X's WLA_a - converts acute WLA to chronic units
ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)
CV-Coefficient of variation	0.6	Default of 0.6 - if data are available, use tables Page 2)

Constants	eA	0.4109447	Default = 0.41
	eB	0.6010373	Default = 0.60
	eC	2.4334175	Default = 2.43
	eD	2.4334175	Default = 2.43 (1 samp) No. of sample 1

**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.

$LTA_{a,c}$	1.2328341	WLAa,c X's eA				
LTA_c	0.6010373	WLAc X's eB				
MDL** with $LTA_{a,c}$	3.000000074	TU_c	NOEC =	33.333333	(Protects from acute/chronic toxicity)	
MDL** with LTA_c	1.462574684	TU_c	NOEC =	68.372577	(Protects from chronic toxicity)	
AML with lowest LTA	1.462574684	TU_c	NOEC =	68.372577	Lowest LTA X's eD	

Rounded NOEC's %
NOEC = 34 %
NOEC = 69 %
NOEC = 69

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a

MDL with $LTA_{a,c}$	0.300000007	TU_a	LC50 =	333.333325 %	Use NOAEC=100%	
MDL with LTA_c	0.146257468	TU_a	LC50 =	683.725769 %	Use NOAEC=100%	

Rounded LC50's %
LC50 = NA %
LC50 = NA

Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)

IF YOU HAVE AT LEAST 10 DATA POINTS THAT ARE QUANTIFIABLE (NOT "<" OR ">") FOR A SPECIES, ENTER THE DATA IN EITHER COLUMN "G" (VERTEBRATE) OR COLUMN "J" (INVERTEBRATE). THE 'CV' WILL BE PICKED UP FOR THE CALCULATIONS BELOW. THE DEFAULT VALUES FOR eA, eB, AND eC WILL CHANGE IF THE 'CV' IS ANYTHING OTHER THAN 0.6.

Coefficient of Variation for effluent tests

CV = 0.6 (Default 0.6)

δ^2 = 0.3074847

δ = 0.554513029

Using the log variance to develop eA
(P. 100, step 2a of TSD)

Z = 1.881 (97% probability stat from table

A = -0.88929666

eA = 0.410944686

Using the log variance to develop eB
(P. 100, step 2b of TSD)

δ_4^2 = 0.086177696

δ_4 = 0.293560379

B = -0.50909823

eB = 0.601037335

Using the log variance to develop eC
(P. 100, step 4a of TSD)

δ^2 = 0.3074847

δ = 0.554513029

C = 0.889296658

eC = 2.433417525

Using the log variance to develop eD
(P. 100, step 4b of TSD)

n = **1** This number will most likely stay as **"1"**, for 1 sample/month.

δ_n^2 = 0.3074847

δ_n = 0.554513029

D = 0.889296658

eD = 2.433417525

	Vertebrate IC_{25} Data or LC_{50} Data	LN of data	Invertebrate IC_{25} Data or LC_{50} Data	LN of data
	**********		**********	
1	0		0	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
St Dev	NEED DATA	NEED DATA	St Dev	NEED DAT/ NEED DATA
Mean	0	0	Mean	0 0
Variance	0	0.000000	Variance	0 0.000000
CV	0		CV	0

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC_{50}, since the ACR divides the LC_{50} by the NOEC. LC_{50}'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

Table 1. Result:	Vertebrate ACR	0
Table 2. Result:	Invertebrate ACR	0
	Lowest ACR	Default to 10

Table 2. ACR using Invertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
				ACR for vertebrate data:			0

Convert LC_{50}'s and NOEC's to Chronic TU's

Table 3. **for use in WLA.EXE** **ACR used: 10**

	Enter LC_{50}	TUc	Enter NOEC	TUc
1		NO DATA	100	1.000000
2		NO DATA	100	1.000000
3		NO DATA	100	1.000000
4		NO DATA	100	1.000000
5		NO DATA	56	1.785714
6		NO DATA		NO DATA
7		NO DATA		NO DATA
8		NO DATA		NO DATA
9		NO DATA		NO DATA
10		NO DATA		NO DATA
11		NO DATA		NO DATA
12		NO DATA		NO DATA
13		NO DATA		NO DATA
14		NO DATA		NO DATA
15		NO DATA		NO DATA
16		NO DATA		NO DATA
17		NO DATA		NO DATA
18		NO DATA		NO DATA
19		NO DATA		NO DATA
20		NO DATA		NO DATA

If WLA.EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUa and then an LC50, enter it here: NO DATA $\%LC_{50}$

NO DATA TUa

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring		Limit	
	% Effluent	TUc	% Effluent	TUc
Dilution series based on data mean	100	1.0		
Dilution series to use for limit			69	1.4492754
Dilution factor to recommend:	0.5		0.8306624	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	50.0	2.00	83.1	1.20
	25.0	4.00	69.0	1.45
	12.5	8.00	57.3	1.74
	6.25	16.00	47.6	2.10
Extra dilutions if needed	3.12	32.05	39.5	2.53
	1.56	64.10	32.9	3.04

Cell: I9
Comment:
This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18
Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22
Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40
Comment:
If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41
Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48
Comment:
See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62
Comment:
Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62
Comment:
Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117
Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119
Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121
Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: 100/NOEC = TUc or 100/LC50 = TUa.

Cell: C138
Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

10/3/2008 11:18:53 AM

Facility = Pulaski WTP - VA0079863
Chemical = Whole Effluent Toxicity
Chronic averaging period = 4
WLAa = 0.3
WLAc = 1
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 5
Expected Value = .731296
Variance = .192526
C.V. = 0.6
97th percentile daily values = 1.77955
97th percentile 4 day average = 1.21672
97th percentile 30 day average= .881982
< Q.L. = 4
Model used = BPJ Assumptions, Type 1 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 0.3
Average Weekly limit = 0.3
Average Monthly LImit = 0.3

The data are:

0
0
0
0
1.785714

10/3/2008 11:16:32 AM

Facility = Pulaski WTP - VA0079863
Chemical = TRC
Chronic averaging period = 4
WLAa = 11
WLAc =
Q.L. = 100
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 20000
Variance = 1440000
C.V. = 0.6
97th percentile daily values = 48668.3
97th percentile 4 day average = 33275.8
97th percentile 30 day average= 24121.0
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 11
Average Weekly limit = 11
Average Monthly LImit = 11

The data are:

20000

Attachment D
TMP Justification Memorandum

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
WEST CENTRAL REGIONAL OFFICE

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: TMP for Permit Reissuance for Pulaski WTP - VA0079863

TO: Permit File

FROM: Kevin Harlow, WCRO

DATE: October 3, 2008

General Information

The Town of Pulaski Water Treatment Plant discharges a maximum daily flow of 0.262 MGD and an average flow of 0.18 MGD. Wastewater is generated from the backwashing of filters (0.055 MGD) and from the blowdown of the Superpulsator (0.050 MGD). The Superpulsator replaces the traditional sedimentation basin. The Superpulsator is drained and cleaned yearly. During the draining events, the maximum flow from the facility is 0.262 MGD.

During the current permit cycle the facility conducted annual acute and chronic testing using C. dubia and P. promelas respectively. and chronic tests (C. dubia and P. promelas). The December, 2004 chronic test failed to meet a 1.0 TUc and the December, 2006 acute test failed to meet a 1.0 TUa.

Recommendations - Biological Testing

The acute data from included whole effluent toxicity testing results table below was entered into the WETLIM10.XLS spreadsheet and STATS.EXE (output of both included in **Attachment C**) for the purposes of determining whether there is reasonable potential to exceed the water quality standards. A copy of the output of these two spreadsheets is included in this attachment. There is reasonable potential to exceed the acute water quality standards and therefore an acute whole effluent toxicity limit of 1.0 TUa, where TUa = 100/NOAEC, is needed.

In order to ensure that the facility has time to attain compliance with this final effluent limitation, a four-year compliance schedule is included in the permit. During the compliance schedule period the facility shall conduct and report annual, acute WET testing results with no limitation on the TUa.

Pulaski Water Treatment Plant - VA0079863

Results of Whole Effluent Toxicity Testing

Event	Outfall	Date_Begin	Date_End	C. dubia	P. promelas	LC50	NOEC	TU(a or c)	Surv100%
1st Annual	001	6/16/2004	6/18/2004	0	1	70		1.43	10
1st Annual	001	6/15/2004	6/22/2004	1	0	>100	100	1	50
2nd Annual	001	1/27/2005	1/29/2005	0	1	>100		<1	100
2nd Annual	001	1/25/2005	2/1/2005	1	0	>100	100	1	82.5
3rd Annual	001	11/10/2005	11/12/2005	0	1	>100		<1	100
3rd Annual	001	11/1/2005	11/8/2005	1	0	>100	100	1	90
4th Annual	001	12/5/2006	12/7/2006	0	1	>100		<1	65
4th Annual	001	12/4/2006	12/11/2006	1	0	>100	56	1.8	82.5
5th Annual	001	12/18/2007	12/20/2007	0	1	>100		<1	100
5th Annual	001	12/17/2007	12/24/2007	1	0	>100	100	1	100

Attachment E
EPA Permit Rating Worksheet

NPDES Permit Rating Work Sheet

___ Regular Addition
___ Discretionary Addition
_X__ Score change, but no status change
___ Deletion

NPDES NO: |_V__|_A__|_0__|_0__|_7__|_9__|_8__|_6__|_3__|

Facility Name:

|_P_|_u_|_l_|_a_|_s_|_k_|_i_|__|__|_W_|_T_|_P_|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

City: |_P_|_u_|_l_|_a_|_s_|_k__|_i_|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

Receiving Water: |_T_|_r_|_a_|_c_|_t_|__|_F_|_o_|_r_|_k_|__|__|__|__|_C_|_r_|_e_|_e_|_k_|__|_U__|_T__|__|__|__|__|__|__|__|__|

Reach Number: |_V__|_A__|_W__|_-__|_N__|_1__|_7__|_R__|__|__|__|

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

___ YES: score is 600 (stop here) _x_ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

___ YES; score is 700 (stop here)
_x_ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: |___|___|___|___| Primary SIC Code: |_4_|_9_|_4_|_1_|

Other SIC Codes: |___|___|___|___| |___|___|___|___| |___|___|___|___| |___|___|___|___|

Industrial Subcategory Code: |_0_|_0_|_0_| (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
__ No process waste streams	0	0	___ 3.	3	15	_X__ 7.	7	35
___ 1.	1	5	___ 4.	4	20	__ 8.	8	40
___ 2.	2	10	___ 5.	5	25	___ 9.	9	45
			___ 6.	6	30	___ 10.	10	50

Code Number Checked: |_0_|_7_|

Total Points Factor 1: |_3_|_5_|

FACTOR 2: Flow/Stream Flow Volume *(Complete Either Section A or Section B; check only one)*

Section A--Wastewater Flow Only Considered

Wastewater Type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	_X__	11	0
	Flow 5 to 10 MGD	___	12	10
	Flow > 10 to 50 MGD	___	13	20
	Flow > 50 MGD	___	14	30
Type II:	Flow < 1 MGD	__	21	10
	Flow 1 to 5 MGD	___	22	20
	Flow > 5 to 10 MGD	___	23	30
	Flow > 10 MGD	___	24	50
Type III:	Flow < 1 MGD	___	31	0
	Flow 1 to 5 MGD	___	32	10
	Flow > 5 to 10 MGD	___	33	20
	Flow > 10 MGD	___	34	30

Section B--Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10%	___	41	0
	≥ 10% to < 50%	___	42	10
	≥ 50%	___	43	20
Type II:	<10%	___	51	0
	≥ 10% to < 50%	___	52	20
	≥ 50%	___	53	30

Code Checked from Section A or B: |_1_|_1_|

Total Points Factor 2: |_0_|_0_|

NPDES Permit Rating Work Sheet

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ___ BOD ___ COD ___ Other:

Permit Limits: (check one)			Code	Points
	_X_	< 100 lbs/day	1	0
	___	100 to 1000 lbs/day	2	5
	___	>1000 to 3000 lbs/day	3	15
	___	>3000 lbs/day	4	20

Code Checked: |_1_|

Points Scored: |_0_|_0_|

B. Total Suspended Solids (TSS)

Permit Limits: (check one)			Code	Points
	_X_	< 100 lbs/day	1	0
	___	100 to 1000 lbs/day	2	5
	___	>1000 to 5000 lbs/day	3	15
	___	>5000 lbs/day	4	20

Code Checked: |_1_|

Points Scored: |_0_|_0_|

C. Nitrogen Pollutant: (check one) ___ Ammonia ___ Other: _____

Permit Limits: (check one)			Code	Points
	_X_	< 300 lbs/day	1	0
	___	300 to 1000 lbs/day	2	5
	___	>1000 to 3000 lbs/day	3	15
	___	>3000 lbs/day	4	20

Code Checked: |_1_|

Points Scored: |_0_|_0_|

Total Points Factor 3: |_0_|_0_|

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

_X_ YES (if yes, check toxicity potential number below)
___ NO (if no, go to Factor 5)

Determine the human health toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column -- check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
___ No process waste streams	0	0	___ 3.	3	0	_X__ 7.	7	15
___ 1.	1	0	___ 4.	4	0	___ 8.	8	20
___ 2.	2	0	___ 5.	5	5	___ 9.	9	25
			___ 6.	6	10	___ 10.	10	30

Code Number Checked: |_0_|_7_|

Total Points Factor 4: |_1_|_5_|

NPDES Permit Rating Work Sheet

NPDES No.: |_V_|_A_|_0_|_0_|_7_|_9_|_8_|_6_|_3_|

FACTOR 5: Water Quality Factors

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?*

		Code	Points
_X__	Yes	1	10
___	No	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

		Code	Points
_x_	Yes	1	0
___	No	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

		Code	Points
_X__	Yes	1	10
__	No	2	0

Code Number Checked:A |_1_| B |_1_| C |_1_|

Points Factor 5:A |_1_|_0_| + B |_0_| + C |_10_| = |_2_|_0_| TOTAL

FACTOR 6: Proximity to Near Coastal Waters N/A

A. *Base Score: Enter flow code here (from Factor 2):* |___|___|

Enter the multiplication factor that corresponds to the flow code: |___|___|

Check appropriate facility HPRI Code (from PCS):

	HPRI #	*Code*	*HPRI Score*
___	1	1	20
___	2	2	0
___	3	3	30
___	4	4	0
___	5	5	20

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI code checked: |___|

Base Score: (HPRI Score) _____ x (Multiplication Factor) _____ = _____0____ (TOTAL POINTS)

B. *Additional Points--NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?
N/A

		Code	Points
___	Yes	1	10
___	No	2	0

C. *Additional Points--Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)

N/A

		Code	Points
___	Yes	1	10
___	No	2	0

Code Number Checked:A |_N/A_| B |_N/A_| C |_N/A_|

Points Factor 5: A |___|___| + B |___|___| + C |___|___| = |_____0_____| TOTAL

NPDES Permit Rating Work Sheet

NPDES NO: |_V_|_A_|_0_|_0_|_7_|_9_|_8_|_6_|_3_|

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	35
2	Flow/Stream Flow Volume	00
3	Conventional Pollutants	00
4	Public Health Impacts	15
5	Water Quality Factors	20
6	Proximity to Near Coastal Waters	00
	TOTAL (Factors 1-6)	**70**

S1. Is the total score equal to or greater than 80? ___ Yes (Facility is a major) _x_ No

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

_x_ No

___ Yes (add 500 points to the above score and provide reason below:

Reason: _____

_____

_____

_____

_____

NEW SCORE: 70

OLD SCORE: 60

Kevin Harlow
Permit Reviewer's Name

(540) 562-6788
Phone Number

September 29, 2008
Date

npdesrs.dak (2/21/95)